Amendment and Response
Applicant: Daniel R. Tretter et al.
Serial No.: 10/696,888
Filed: October 30, 2003
Docket No.: 200314885-1 / H304.125.101
Title: GENERATING AND DISPLAYING SPATIALLY OFFSET SUB-FRAMES ON DIFFERENT TYPES
OF GRIDS

IN THE CLAIMS

Please amend claims 1, 3, 5, 10, 12, 14, 19, 21, 23, 24, 27, 31, and 37 as follows:

1.(Currently Amended)   A method of displaying an image with a display device, the method comprising:

receiving image data for the image on a first type of grid;

generating a first sub-frame and a second sub-frame corresponding to the image data, the first and the second sub-frames each generated on a second type of grid that is different than the first type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid; and

alternating between displaying the first sub-frame in a first position and displaying the second sub-frame in a second position spatially offset from the first position.

2.(Original)   The method of claim 1, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

3.(Currently Amended)   The method of claim 2, wherein the image data includes rectangular-shaped pixels on the rectangular grid, and the first and the second sub-frames each include diamond-shaped pixels on a the diamond grid.

4.(Original)   The method of claim 1, wherein the first type of grid is a diamond grid and the second type of grid is a rectangular grid.

5.(Currently Amended)   The method of claim 4, wherein the image data includes diamond-shaped pixels on the diamond grid, and the first and the second sub-frames each include rectangular-shaped pixels on the a rectangular grid.

6.(Original)   The method of claim 1, wherein the first sub-frame and the second sub-frame are generated on the second type of grid based on minimization of an error between the image data and a simulated image.

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7.(Original)   The method of claim 6, wherein the simulated image is based on a convolution of the first and the second sub-frames with an interpolating filter.

8.(Original)   The method of claim 7, wherein the interpolating filter includes five filter coefficients.

9.(Original)   The method of claim 8, wherein the five filter coefficients include four coefficients each having a value of one-eighth and one coefficient having a value of one-half.

10.(Currently Amended)   A system for displaying an image, the system comprising:

a buffer adapted to receive image data for the image on a first type of grid;

an image processing unit configured to define first and second sub-frames corresponding to the image data, the first and the second sub-frames each defined on a second type of grid that is different than the first type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid; and

a display device adapted to alternately display the first sub-frame in a first position and the second sub-frame in a second position spatially offset from the first position.

11.(Original) The system of claim 10, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

12.(Currently Amended)   The system of claim 11, wherein the image data includes rectangular-shaped pixels on the rectangular grid, and the first and the second sub-frames each include diamond-shaped pixels on thea diamond grid.

13.(Original) The system of claim 10, wherein the first type of grid is a diamond grid and the second type of grid is a rectangular grid.

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14.(Currently Amended)   The system of claim 13, wherein the image data includes diamond-shaped pixels on the diamond grid, and the first and the second sub-frames each include rectangular-shaped pixels on thea rectangular grid.

15.(Original) The system of claim 10, wherein the image processing unit is configured to define the first and the second sub-frames based on minimization of an error between the image data and a simulated image.

16.(Original) The system of claim 15, wherein the simulated image is based on a convolution of the first and the second sub-frames with an interpolating filter.

17.(Original) The system of claim 16, wherein the interpolating filter includes five filter coefficients.

18.(Original) The system of claim 17, wherein the five filter coefficients include four coefficients each having a value of one-eighth and one coefficient having a value of one-half.

19.(Currently Amended)   A system for generating low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution image, the system comprising:

    means for receiving a first high resolution image on a first type of grid;

    means for storing a relationship between low resolution sub-frame values and high resolution image values, the relationship based on minimization of an error metric between the high resolution image values and a simulated high resolution image that is a function of the low resolution sub-frame values; and

    means for generating a first plurality of low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution image based on the first high resolution image and the stored relationship, each of the

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low resolution sub-frames generated on a second type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid.

20.(Original)   The system of claim 19, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

21.(Currently Amended)   The system of claim 20, wherein the first high resolution image includes rectangular-shaped pixels on the rectangular grid, and the first plurality of low resolution sub-frames each include diamond-shaped pixels on thea diamond grid.

22.(Original)   The system of claim 19, wherein the first type of grid is a diamond grid and the second type of grid is a rectangular grid.

23.(Currently Amended)   The system of claim 22, wherein the first high resolution image includes diamond-shaped pixels on the diamond grid, and the first plurality of low resolution sub-frames each include rectangular-shaped pixels on thea rectangular grid.

24.(Currently Amended)   The system of claim 19, wherein the simulated high resolution image is based on a convolution of the first plurality of low resolution sub-frames with an interpolating filter.

25.(Original)   The system of claim 24, wherein the interpolating filter includes five filter coefficients.

26.(Original)   The system of claim 25, wherein the five filter coefficients include four coefficients each having a value of one-eighth and one coefficient having a value of one-half.

27.(Currently Amended)   A computer-readable medium having computer-executable instructions for performing a method of generating low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution image, comprising:

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receiving a first high resolution image on a first type of grid;

providing a relationship between sub-frame values and high resolution image values, the relationship based on minimization of a difference between the high resolution image values and a simulated high resolution image that is a function of the sub-frame values; and

generating a first plurality of low resolution sub-frames for display at spatially offset positions to generate the appearance of a high resolution image based on the first high resolution image and the relationship between sub-frame values and high resolution image values, the first plurality of low resolution sub-frames generated on a second type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid.

28.(Original) The computer-readable medium of claim 27, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

29.(Original) The computer-readable medium of claim 27, wherein the first type of grid is a diamond grid and the second type of grid is a rectangular grid.

30.(Original) The computer-readable medium of claim 27, wherein the simulated high resolution image is based on a convolution of the first plurality of sub-frames with an interpolating filter.

31.(Currently Amended) A method of displaying an image with a display device, the method comprising:

receiving image data for the image on a first type of grid;

generating a first frame corresponding to the image data based on minimization of an error between the image data and a simulated image, the first frame generated on a second type of grid that is different than the first type of grid; and

displaying the first frame on the second type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid.

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32.(Original) The method of claim 31, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

33.(Original) The method of claim 32, wherein the image data includes rectangular-shaped pixels on the rectangular grid, and the first frame includes diamond-shaped pixels on the diamond grid.

34.(Original) The method of claim 31, wherein the simulated image is based on a convolution of the first frame with an interpolating filter.

35.(Original) The method of claim 34, wherein the interpolating filter includes five filter coefficients.

36.(Original) The method of claim 35, wherein the five filter coefficients include four coefficients each having a value of one-half and one coefficient having a value of one.

37.(Currently Amended) A system for displaying an image, the system comprising:

> a buffer adapted to receive image data for the image on a first type of grid;
> an image processing unit configured to define a first frame corresponding to the image data based on minimization of an error between the image data and a simulated image, the first frame defined on a second type of grid that is different than the first type of grid, wherein one of the first type of grid and the second type of grid is a non-rectangular grid; and
> a display device adapted to display the first frame on the second type of grid.

38.(Original) The system of claim 37, wherein the first type of grid is a rectangular grid and the second type of grid is a diamond grid.

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39.(Original)   The system of claim 38, wherein the image data includes rectangular-shaped pixels on the rectangular grid, and the first frame includes diamond-shaped pixels on the diamond grid.

40.(Original)   The system of claim 37, wherein the simulated image is based on a convolution of the first frame with an interpolating filter.

41.(Original)   The system of claim 40, wherein the interpolating filter includes five filter coefficients.

42.(Original)   The system of claim 41, wherein the five filter coefficients include four coefficients each having a value of one-half and one coefficient having a value of one.